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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,107	02/18/2004	Chang-Cheng Hung	N1085-00145	1972
54657 7590 12/11/2007 DUANE MORRIS LLP IP DEPARTMENT (TSMC) 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103-4196			EXAMINER DESIRE, GREGORY M	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 12/11/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/781,107

Applicant(s)

HUNG ET AL.

Examiner

Gregory M. Desire

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/18/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Burdorf et al (5,795,688) in views of Hung et al (7,162,071).

Regarding claims 1, 3, 4, 10, 15 and 20 Burdorf discloses,

Acquiring at least one digitized image of at least one mask pattern on the wafer (fig. 2, 18, note col. 3 lines 40-49, examiner interprets the aerial image as acquired digitized image of mask pattern on the wafer);

Converting at least one mask database file for a mask corresponding to the mask pattern into at least one inspection file specific to an inspection tool through an aerial image based processing (fig. 2, 30 note col. 4 lines 8-10, examiner interprets generated simulated aerial image as converted masked file for mask pattern into inspection file through processing aerial image);

Comparing the digitized image (18) and the inspection file (30) by the inspection tool (note col. 4 lines 10-11); and

Detecting disallowed mask patterning process-induced defects by examining differences (note col. 4 lines 11-12, discrepancies are detected).

Burdorf does not clearly disclose actual feature on the wafer taken directly from the wafer. Hung discloses actual feature on the wafer taken directly from the wafer (note col. 5 line 46-54, extracts and scans defect image bump on patterns). Burdorf and Hung are combinable because they are from the same field of endeavor. Therefore it would have been obvious to one of ordinary skill in the art to disclose actual feature on the wafer to be taken directly from the wafer in the system of Burdorf as evidenced by Hung. Hung also teaches scanned wafer defect image is a mask defect image. Thus, Burdorf defects from photo mask is also wafer defect. The suggestion/motivation for doing so would have been enhancing wafer defect review (note col. 4 lines 64-65)

Regarding claim 2 Burdorf discloses,

Wherein the design database file is processed with optical proximity correction features (note col. 1 lines 39-41 col. 3 lines 25-30 and 54-57).

Regarding claim 6 Burdorf discloses,

Detecting a proximity trend with the portion of the wafer (note col. 3 lines 54-55)

Regarding claims 7-9, 11-14 Burdorf discloses,

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Wherein the detecting further includes detecting defects induced by one or more processes using the mask (note col. 4 lines 20-26).

Regarding claim 16 Burdorf discloses,

Wherein the defects includes critical dimension errors (note fig. 2, 34).

Regarding claim 17 Burdorf discloses,

Further includes information about critical dimension distribution (note fig. 2, 34 and col. 4 lines 11-12).

Regarding claims 5 and 18 Burdorf discloses,

Further comprising bias fitting the digitized image and/or the inspection file (note col. 3 lines 40-50)

Regarding claim 19 Burdorf discloses,

Wherein the detecting further includes setting on or more error detection thresholds for avoiding false defects (note col. 3 lines 62-63).

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory M. Desire whose telephone number is (571) 272-7449. The examiner can normally be reached on M-F (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

G.D.  
December 10, 2007



GREGORY DESIRE  
PRIMARY EXAMINER